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EDITORIAL

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Fifty years of devotion to spiders: a concise biography of Christo Deltshev, with a complete list of his publications and described taxa

Pavel Stoev[1], Alexi Popov[1], Gergin Blagoev[2], Stoyan Lazarov[3]

1 *National Museum of Natural History, Tsar Osvoboditel Blvd. 1, 1000 Sofia, Bulgaria* **2** *Biodiversity Institute of Ontario, University of Guelph, 579 Gordon Street, Guelph, Ontario N1G 2W1, Canada* **3** *Institute of Zoology, Tsar Osvoboditel Blvd. 1, 1000 Sofia, Bulgaria*

Corresponding author: *Pavel Stoev* (pavel.e.stoev@gmail.com)

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Abstract

This paper provides an overview of the life and scientific work of Dr. Christo Deltshev, the doyen of Bulgarian araneology. It also analyses his more important research contributions and provides a list of his scientific publications and the species he described.

Keywords

Biography, Christo Deltshev, spiders, bibliography, Bulgaria

It is both difficult and easy to write about the doyen of Bulgarian araneology Christo Deltshev. It is difficult because his work, although in one area – the study of spiders, is rather varied. And yet it is easy because we, the authors of this biography, know our colleague and friend Christo Deltshev and his development as a zoologist very well. We have witnessed how before our very eyes the enthusiastic lover of spiders, caves and mountains gradually turned into an erudite araneologist enjoying the respect of his colleagues from many countries. The seventieth anniversary of Christo Deltshev is reason enough to look back on his achievements in science and life and outline his

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position in the international arachnological community and among Bulgarian zoologists. This we did during the celebration of his anniversary at the National Museum of Natural History.

Christo Deltshev was born on January 22, 1939 in Sofia. More than two thirds of the seventy years, which have passed since then, he devoted to the study of spiders, first as a speleologist and then as a professional scientist with the Institute of Zoology. His father Deltcho Deltshev was from Komotini (now in northern Greece) and his mother Victoria Gospodinova was from Sofia. Even as a pupil Christo (or Itso as most of his friends and colleagues call him) showed great interest in nature, and in the parks of Sofia and Vitosha Mountain he collected different insects and spiders, which then he brought home in shoe boxes to look after them. At school his interest in animals grew stronger and he became the head of the biology group. The anti-communist inclinations of his father had a negative affect on the way Christo's life would turn out. At the time of fierce repressions by the Communist party the son of the former convict was subject to great pressure. Despite his wish, he was not allowed to study at the university and after he served in the army from 1957 to 1959 he was forced to start as a common worker.

Luckily, at that particular time the law was changed and after successfully passing the exams in 1960, Christo Deltshev was accepted as a student at the University of Sofia. It was then that he met a group of ardent speleologists – Petar Tranteev, Vassil Guéorgiev, Petar Beron, Vladimir Beshkov, Tanyu Michev, Stoitze Andreev and Alexi Popov – and with them he started exploring the caves of Bulgaria and their fauna. This helped him make an important decision – to devote his scientific interests to spiders. Almost fifty years have passed since then and Christo Deltshev is still collecting, observing, describing and studying spiders with the same vigour and passion.

He received his first instructions on the organization and conduct of scientific research and an acquaintance with different methods from Dr. Ivan Buresch, member of the Bulgarian Academy of Sciences and founder of contemporary zoology and biospeleology in Bulgaria. He acquainted him with the work of Associate Professor Dr. Pencho Drensky, and gave Christo reprints of the publications by this eminent Bulgarian arachnologist and part of his bibliography files on spiders. Years later, as a sign of respect to his mentor Deltshev (1975 [12][1]) named a newly discovered cave spider *Troglohyphantes bureschianus*. At the same time, at the beginning of 1962, he got to know Pencho Drensky himself, who gave him his first lessons in araneology. Unfortunately, due to the death of P. Drensky just a few months later, Christo lost the opportunity to share with him his ideas on spider studies and hear his advice.

Christo Deltshev received his degree from the Invertebrate Zoology Department of the St. Kliment Ohridsky University of Sofia in 1965 with a thesis entitled "The spiders (Araneae) of Vitosha Mountain". That same year he was appointed as a biologist at the Institute of Zoology with the Bulgarian Academy of Sciences (then

[1] The number in the square brackets after each citation designates the serial number from the List of Christo Deltshev's publications at the end of the paper.

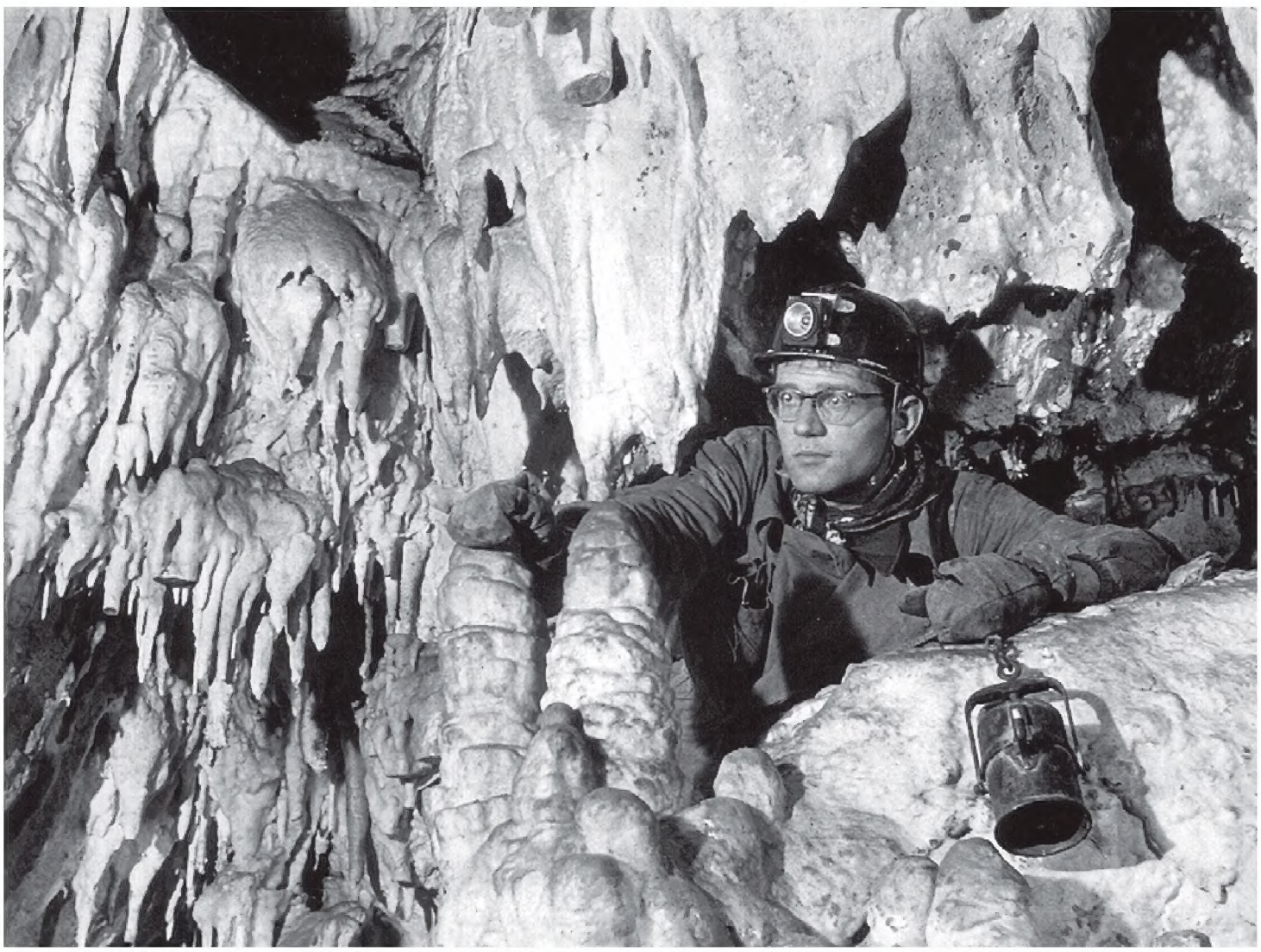

Figure 1. Christo Deltshev in the Elata Cave near the village of Zimevitsa, Bulgaria, in 1961 (photo Petko Nedkov).

Institute of Zoology and Museum), where he still works to this day. From 1972 to 1985 he was an Assistant Professor. His PhD thesis, which he defended in 1977, was entitled "Faunistic, taxonomic, ecological and zoogeographical investigations on the cave spiders of Bulgaria (Araneae)". Since 1985 he has been an Associate Professor. The director of the Institute of Zoology appreciated his organizational and management skills and in 1995 Christo Deltshev was elected head of the Department of Taxonomy, Faunistics and Zoogeography. He has occupied this position ever since. Two years later he was appointed Secretary of the Scientific Council of Zoology and Ecology with the High Attestation Commission. As an administrator he is still involved with the organization and procedures for thesis defense by zoologists and ecologists in Bulgaria. His work for the Council puts him in touch with many young people who share with him their passion for zoology. With his typical responsiveness and friendliness he was able to help many of them on different occasions; indeed it is hard to find anyone among the Bulgarian zoological community who doesn't know Christo Deltshev.

His valuable scientific results derive from his qualities and perseverance as a field researcher. He has been connected with nature his whole life and is well acquainted with the Bulgarian mountains. We, the authors of this biography, had to overcome together with him storms, fog and hail and we know that his desire for explorations

of caves and mountains is inextinguishable. In sunny and in stormy weather he never loses his good spirits.

The head of the Institute of Zoology, Professor Alexander Valkanov, took Christo, just after he started work, to his summer expeditions to explore the high-mountain lakes of Rila and Pirin. During one of these expeditions to the Seven Rila Lakes, together with German hydrobiologists, one evening at the camp fire he found out that Christo was a fire-dancer. Fire-dancing is an ancient folk custom from Strandzha Mountain in south-east Bulgaria during which the dancers – in a trance-like state – dance bare-foot over live coals. To the professor's question "Will you do it?" Christo took off his shoes, set the glowing embers ready, went around them and then several times walked over the still glowing coal. "I have lived to see this miracle as well!", Professor Valkanov exclaimed, and was amazed to see there were no burn marks on Christo's feet. Christo's participation in Professor Valkanov's expeditions stirred his interest in the fauna of the high-mountain spiders of Bulgaria.

In the beginning of his scientific career he established cooperation with arachnologists from other countries (Carl Friedrich Roewer and Hermann Wiehle from Germany, Pierre Bonnet and Louis Fage from France, Josef Kratochvil and František Miller from the former Czechoslovakia, Herbert Levi from the USA). In 1972 he described his first spider *Protoleptoneta bulgarica*, which turned out to be both a new genus and species. To make sure he was not mistaken he sought the opinion of Paolo Marcello Brignolli and František Miller, who were at the time among the best taxonomists of this group in Europe. Years later, already an established spider expert himself, Dr. Deltshev advised young zoologists during their first steps in araneology and confirmed the new species they had discovered.

Christo's love for caves started during his university years. The first cave he visited was Kolkina Dupka at the village of Zimevitsa in the Stara Planina Mountain. When entering this precipice cave in 1960, he had to clamber over the corpses of several dead pigs. The more experienced cavers who were leading him saw that he did not shrink at the unpleasant sight and realized the boy would turn out to be a true speleologist. And so he did. His infatuation with caves did not diminish with time, even after an incident of almost tragic proportions took place. In August 1964, when he was climbing down the Bankovitsa abyss at Karlukovo village near Lukovit, several of the rungs of the self-made rope ladder broke and Christo fell 12 metres. His hip was broken in five pieces and he had to spend four months in cast, with recovery taking another four months. From then on, throughout his life the injury tormented him whenever the weather got worse or when he strained himself, but it did not stop Christo from continuing his researches in high mountains and caves or from enjoying nature as a tourist with his family and friends.

Thus it was no wonder that it was in a cave that Christo held his wedding. It happened in 1968 in Temnata Dupka Cave in Iskar Gorge near Lakatnik. Christo had already graduated and started working as a researcher and thought it was time to start a family. And so Elena entered his life and she would become the pillar and support of his further progress. They had three children, one after another, which was a rare case for a family of intellectuals in Bulgaria during the second half of the 20th century.

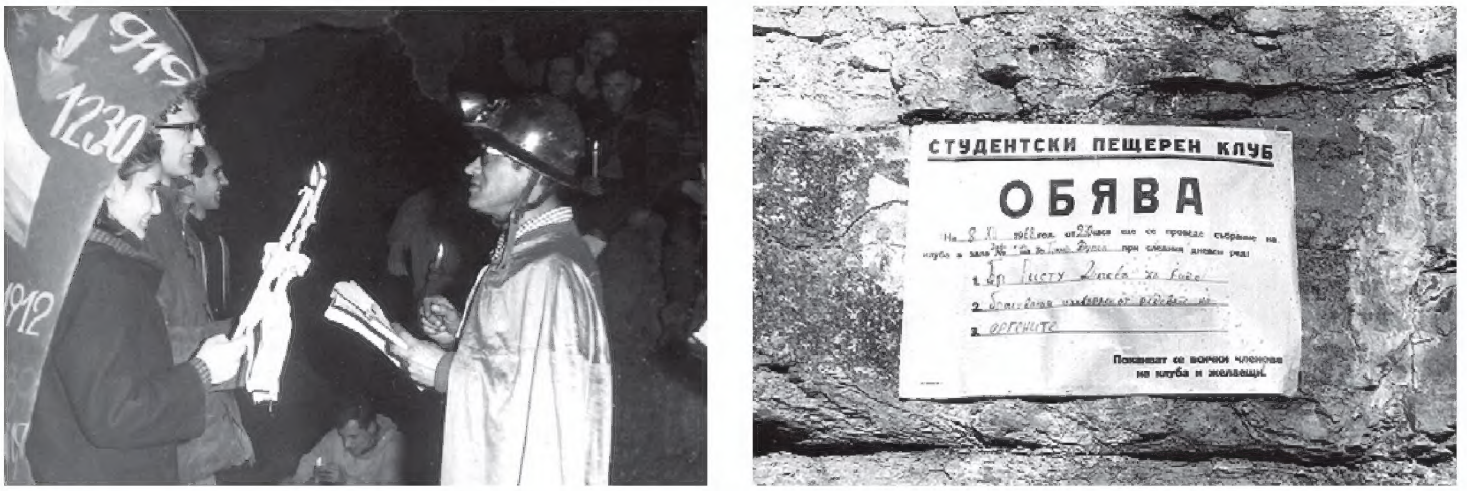

Figure 2. Christo and Elena's wedding in the Temnata Dupka Cave, with the official announcement hung on the Lakatnik rocks close to the cave's entrance, November, 1968 (photo Konstantin Spassov).

Figure 3. Christo with his wife Elena, his daughter Victoria and sons Delyan and Ivan in front of the Svirchovitsa Cave near the village of Karlukovo, Bulgaria, in 1983 (photo Christo Deltshev).

So far Dr. Deltshev has visited and studied the fauna of several hundred caves in Bulgaria. He discovered some of them and for many he was among their first explorers. He participated in the organization of many international, national and club caving expeditions. As well as Bulgaria, Christo also took part in international caving expeditions in Slovenia (1963), the Caucasus (1967), Austria (1968) and the Moravian karst in the Czech Republic (1980). His achievements in speleology were largely due to the influence which the inspirer of the speleological movement in Bulgaria, Petar Tranteev, had on him. Christo proposed to him his idea to make ascenders, which

Figure 4. Christo collecting spiders in the Vorontsovskaya Cave, Abkhazia, in July, 1967 (photo Stoitze Andreev).

were produced by Vesselin Gyaurov, and Christo tested them himself. His speleological organizational work concerns the Bulgarian Federation of Speleology – of which he was the vice-chairman from 1968 until 1993 – as well as the Academic Students' Speleological Club of which he was the chairman in the period 1978-1996. Since 1972 Christo Deltshev has taught a speleology course in the National Sports Academy and is the author of a textbook on speleology.

Christo is a friendly guy. He likes to entertain his colleagues and friends with stories of his expeditions and interesting things he had witnessed. For many years he used to dress like Santa Claus and give away presents to cavers in some mountain hut, and now he is doing this for the children and grandchildren of his colleagues.

In his more than 40 years of scientific research the araneological contributions of Christo Deltshev have been many in number. The main areas of his work and publications are taxonomy, faunistics, zoogeography and ecology of spiders in Bulgaria and the other Balkan countries. He has described as new the genera *Protoleptoneta* and *Cryphoecina*, as well as 34 species and 2 subspecies of spiders from 8 families. The largest number of taxa described by him belongs to the families Linyphiidae (17 species and 2 subspecies), Agelenidae (6 species), Leptonetidae (1 genus and 3 species) and Amaurobiidae (3 species). If we look at the genera, the largest number of newly described taxa belong to *Centromerus* (4 species and 1 subspecies), *Malthonica* (4 species), *Lepthyphantes* and *Eurocoelotes* (3 species each). Christo is a skilled illustrator and this gift largely helps his taxonomic work. The scale of his contributions can be judged also by the fact that all but one of the 38 taxa have been described by him alone. And the quality of his contribution can be estimated by the validity of all the described taxa; again with only one exception (*Lepthyphantes gueorguievi* has been synonymized). The newly described taxa all come from the Balkan Peninsula: Bulgaria (1 genus, 24 species and 2 subspecies), Greece (7 species), Serbia (2 species), Montenegro (1 genus and 1 species). Almost an equal number of the new taxa have been found in caves (16 species) and in mountains (17 species and subspecies), and another 3 species along the coast and in the lowlands. His permanent interest in taxonomy is evident from the even distribution of newly described taxa throughout time: 1970s (12 taxa), 1980s (10 taxa), 1990s (9 taxa) and the first decade of the 21st century (9 species).

Christo Deltshev has conducted some other taxonomic modifications such as the establishment of 25 new synonyms and designation of lectotypes of 7 species. He revised the genus *Tenuiphantes*, the European species of *Bolyphantes*, the species of *Centromerus* in the caves of the Balkan Peninsula, and the genera *Erigone*, *Tegenaria*, *Coelotes* and *Zodarion* in Bulgaria. He also critically revised the spider species of the Balkan Peninsula described by Dr. P. Drensky (Deltshev 2003 [111]). Considerable too are his faunistic contributions to the distribution of spiders across the Balkan countries. Due to his research over many years the number of known species in Bulgaria increased by 237, in Serbia – by 73, in Macedonia (FYROM) – by 22 and in Greece by 11. He also discovered two families (one still unpublished) new for the fauna of Bulgaria. Another aspect of his contribution is the complex research and

analysis of the araneofauna from the different regions of Bulgaria. An excellent field researcher, he conducted and published his studies on the spiders of the mountains Central Stara Planina, Rila, Pirin, the Eastern Rhodopes, Lyulin, Vitosha and Sashtinska Sredna Gora; of plain areas in Bulgaria such as the Black Sea Coast and Ludogorie; of some small but zoogeographically interesting territories such as Srebarna Lake, Shabla–Ezerets wetland, the Sofia Region, Zemen and Kresna gorges and Sandanski–Petrich Kettle.

The climax of Christo Deltshev's work on the study of spiders in the northern part of the Balkan Peninsula are the critical checklist of Bulgarian spiders (Deltshev and Blagoev 2001 [104]) and the monograph "The Spiders of Serbia" (Deltshev et al. 2003 [113]). The checklist contains 910 species according to data based on 173 publications. It has been updated with an online list (Blagoev et al. 2002 [107]) containing up-to-date current information on 1007 species in 41 families based on the review of 226 items of literature. The monograph constitutes a critical catalogue of 618 species of 36 families based on all the literature findings and new data from intensive faunistic research in Serbia. The localities of each species are plotted on a UTM map.

Zoogeography has always interested Christo Deltshev and because of this almost all of his taxonomic works are accompanied by a zoogeographic analysis. In his analysis of spiders of the Balkan Peninsula (Deltshev 1999 [87]) he concentrated on 1409 species from 47 families and selected the regions with the highest species diversity. In this research he established that 26.9 % of spiders (379 species) are endemic for the region and proved the important role of the Balkan Peninsula as a speciation center in Europe. Similar zoogeographic analyses have been published on the spiders of Bulgaria as well (Deltshev 2005 [124]), on endemic spiders of Bulgaria (Deltshev 1996 [67]) and the Balkan Peninsula (Deltshev 2000 [94]), and on troglobitic spiders of the Balkan Peninsula (Deltshev 1978 [20], 2008 [132]).

Some ecological problems also received Christo Deltshev's attention. He studied the population structure of spiders inhabiting cave entrances (Deltshev 1973 [7]) and researched the impact of pasture management on the number and biomass of spiders (Deltshev and Kajak 1974 [11]). He is interested in the factors which determine the assemblage structure of spiders (Popov et al. 2000 [102]). In the sphere of applied zoology he compared the biodiversity of spiders in genetically modified and conventional potato fields (Kalushkov et al. 2008 [134]).

In the last 15 years Dr. Deltshev has carried out intensive studies on the issues regarding the protection of invertebrates in Bulgaria. He is one of the leading experts in drafting the National Strategy for Biodiversity Conservation of Invertebrates (Deltshev et al. 1998 [82]) and identified the conservation significance of spiders in the main protected territories in Bulgaria: the three national parks and some of the nature parks.

The overall number of publications by Dr. Deltshev as of June 2009 (including that in press) is 140. It includes the monograph "Spiders of Serbia" (Deltshev et al. 2003 [113]), a textbook on speleology and caving (Deltshev 1979 [23]) and books of popular science "The descendants of Arachna" (Deltshev 1988 [47]) and "Biodiversity of Pirin National Park" (Popov et al. 2005 [122]).

Figure 5. Christo, Peter van Helsdingen and Konrad Thaler in Szombathely, Hungary, July, 2002 (photo Stoyan Lazarov).

In his many years of work for the Institute of Zoology, Christo Deltshev took part in several dozen research projects. For many of them he was the initiator, or he was the head of the invertebrate research teams. It began in 1968 with a five-year joint project with the Institute of Ecology of the Polish Academy of Sciences in Dziekanów Leśny for comparative ecological investigations on the spiders in grassland ecosystems of Poland and Bulgaria. Within the framework of other projects in 1988 the spider collection of Władysław Kulczyński with the Museum and Institute of Zoology in Warsaw was revised, as well as that of Imre Loksa with the Hungarian Natural History Museum in Budapest. A more permanent collaboration was established with the University of Innsbruck (1981-1992) for comparative taxonomic investigations on the spiders of Bulgaria and Central Europe, Subterranean Laboratory at Moulis (France) for taxonomic study of some European cave spiders (1991-1993) and with the Museum für Naturkunde an der Humboldt-Universität in Berlin (2000-2008) and the Senckenberg Forschungsinstitut und Naturmuseum in Frankfurt (2005-2008) for revisions of spiders collected on the Balkan Peninsula and in Turkey. In recent years Dr. Deltshev has been the head of invertebrate research teams on projects of national importance. Such projects include The National Biological Diversity Conservation Strategy (United States Agency

of International Development, 1993), Biodiversity of Central Balkan, Rila and Pirin national parks (Global Environmental Facility, Bulgarian-Swiss Biodiversity Conservation Program, 1994-1998, 2001-2002) and Vitosha and Rila Monastery nature parks (Bulgarian Ministry of Environment and Waters, 1999-2000; GEF, 2001). He had the same functions on several of the most important projects in Bulgaria regarding nature preservation in recent years: e.g. the National System for Biodiversity Monitoring (2004), NATURA 2000 (2004-2008) and Red Data Book of Bulgaria (2004-2008).

Several practical faunistic methods have been introduced into Bulgaria by Christo Deltshev. He introduced UTM mapping (Lehrer and Deltshev 1978 [21]), which is actively used even now by Bulgarian zoologists. Together with colleagues he proposed methods of collecting, managing and recording faunistic information (Deltshev et al. 1998 [86]), which are also widely used, particularly in studies of biodiversity protection.

There are not so many Bulgarian zoologists who, like Dr. Deltshev, have established their own school of followers. A group has emerged which jointly continues the study of spiders in Bulgaria. He has been the advisor of 4 PhD and 8 graduate students. Two of his PhD students have successfully defended their theses on araneological topics and are currently research associates with the Institute of Zoology in Sofia and the Biodiversity Institute of Ontario in Guelph, Canada. Christo is also an advisor to young zoologists from other Balkan countries.

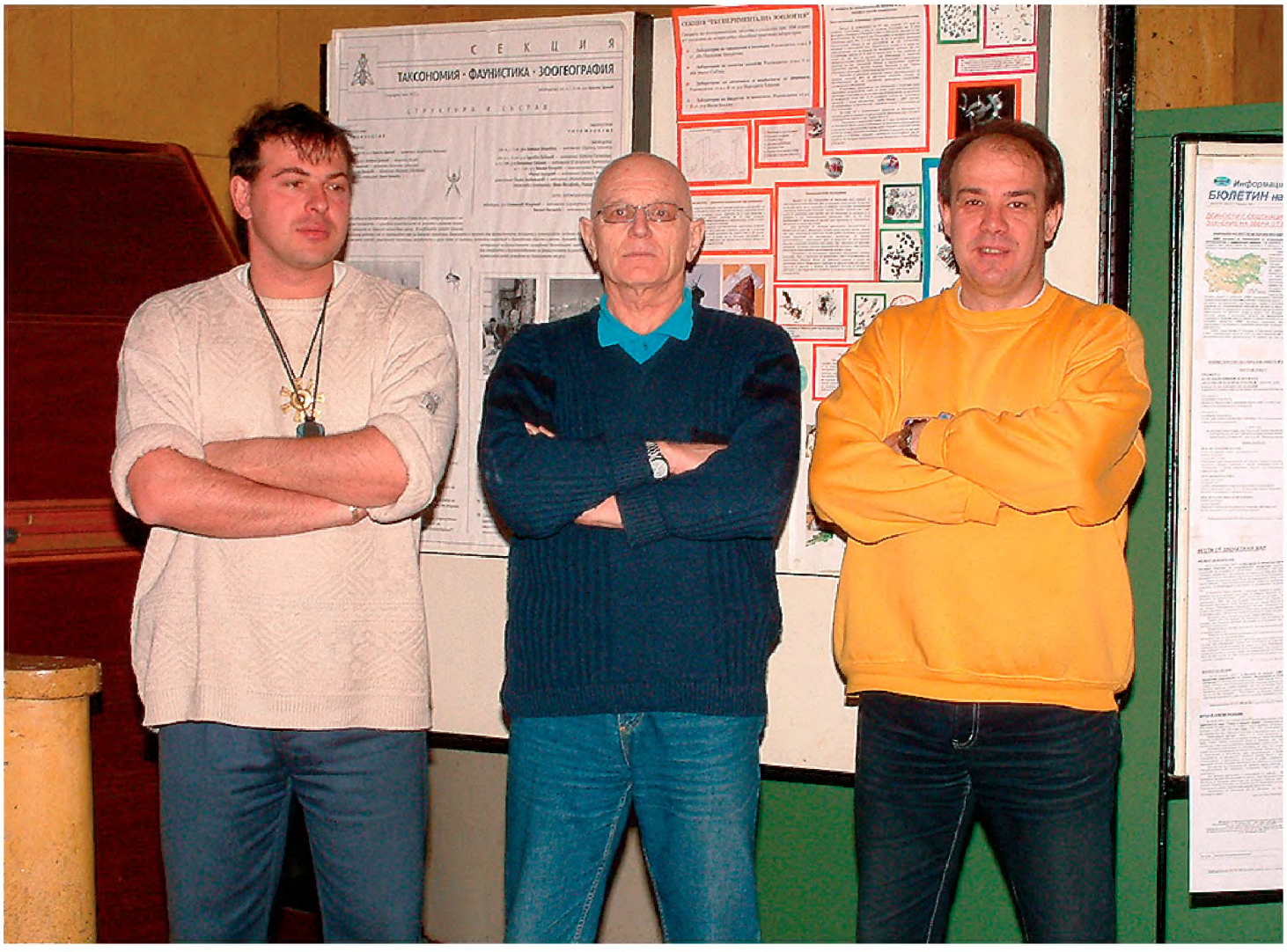

Figure 6. Christo and his students Stoyan Lazarov and Gergin Blagoev, April, 2002 (photo Boris Andreev).

One of the aspects of Christo Deltshev's international activities is his participation in the major arachnological and related associations. He became a member of the International Society of Arachnology (ISA), now seated in Berlin, almost from its beginnings 45 years ago, and he is currently the regional representative for Bulgaria for this most prestigious organization of arachnologists. Christo is also a member of the European Society of Arachnology (ESA), seated in Nancy (France), where he is now a member of the society's Council. In the European Invertebrate Survey (EIS), registered in the Netherlands, he is a member of the organization's Committee and he is also member of Arachnologische Gesellschaft (AraGes) seated in Bayreuth (Germany).

His international debut came at the 5th International Congress of Arachnology in Brno in 1971. Since then he participated in 23 international congresses, conferences and symposia; at eleven of which he was an invited speaker. Most of them were arachnological, such as eight international congresses of arachnology between 1971 (Brno) and 2004 (Gent), six European colloquia of arachnology between 1988 (Berlin) and 2008 (Bern). Other congresses were devoted to speleology (Olomouc, 1973; Budapest, 1989), invertebrate studies (Saarbrücken, 1995), mountain ecosystems (Abisco, 1997) and biodiversity of the Balkan fauna (Ohrid, 1998; Koper, 2001).

Christo Deltshev's organizational skills were fully employed during the preparations for the 22nd European Colloquium of Arachnology, held in Blagoevgrad in August 2005. A total of 115 participants from 27 countries came to Bulgaria. The results of the symposium were published in a special issue of Acta zoologica bulgarica (Deltshev C, Stoev P (Eds) 2006. European Arachnology 2005. Proceedings of the 22nd

Figure 7. Christo Deltshev at his first International Arachnological Congress in Brno, Czechoslovakia, August, 1971 (congress photo).

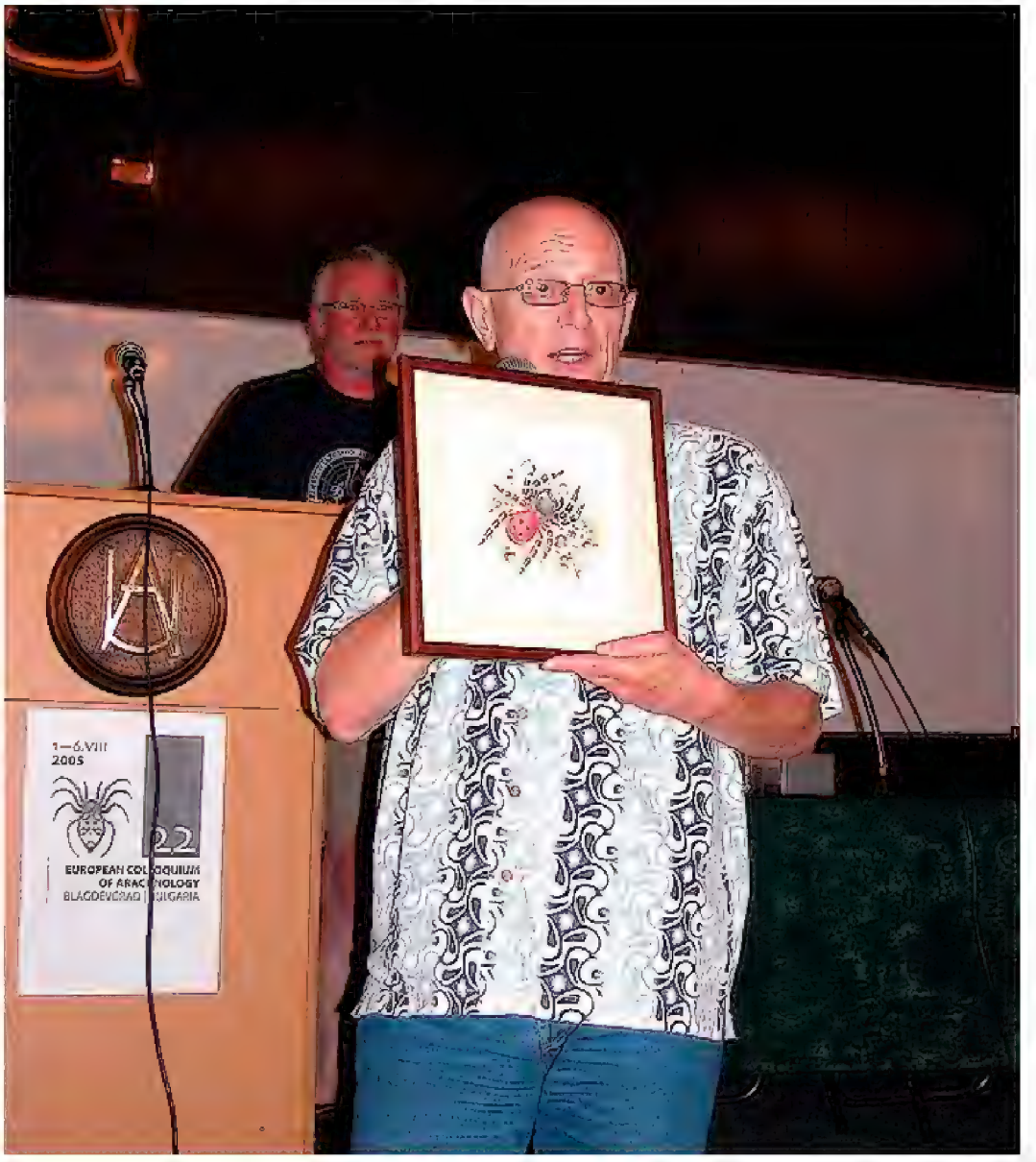

Figure 8. Christo at the 22nd European Colloquium of Arachnology, Blagoevgrad, showing the first prize for best presentation given by young scientist (photo Dmitri Logunov).

European Colloquium of Arachnology, Blagoevgrad 2005. Acta zoologica bulgarica, Suppl. 1, 343 pp.). The participants brought home unforgettable memories of the colloquium, as well as the joys of the Melnik earth pyramids, and the Rhozhen and Rila monasteries, which they visited during a post-colloquium excursion.

Not only his Bulgarian and foreign colleagues pay respect to Christo Deltshev. Different Bulgarian state and scientific institutions have presented him with awards. For his contribution to speleology Dr. Deltshev was awarded an Aleko medal (1972) and a medal for Special Merits (1984). He also received insignia of honour from the State Agency for Youth and Sports, the Bulgarian Tourist Union, the Bulgarian Federation of Speleology, the National Museum of Natural History, and the Institute of Zoology.

Arachnologists and biospeleologists from different countries have described species which they named after Christo Deltshev in acknowledgement of his work. Altogether, one genus and 13 species bear Christo's name. Nine of the species are spiders, there is one harvestman, one millipede and 2 beetles.

The celebration of Christo Deltshev's anniversary at the National Museum of Natural History took place in the hall with a temporary exhibition called Spider Museum – an appropriate backdrop for the evaluation of his work. The results of his work reveal Dr. Deltshev to be an excellent araneologist, acknowledged as one of the most promi-

nent European spider taxonomists. It is thanks to him that the Institute of Zoology possesses a perfectly arranged collection of spiders and database on their distribution across the Balkan countries.

In the year of Christo Deltshev's anniversary we wish him further success as a researcher, administrator and mentor to young researchers. New spider species are yet to be discovered and described by Christo, and more territories on the Balkan Peninsula await his study.

Figure 9. Christo Deltshev on a collecting trip to Samothraki Island, Greece, May, 2008 (photo Lyubomir Alexiev).

List of scientific publications by Christo Deltshev

1. Deltshev C [Delchev C] (1967) On the studies of spiders (Araneae) in the Vitosha Mountain. Bulletin de l`Institute de zoologie et musée (Sofia) 24: 51-56. [in Bulgarian, with English and Russian summaries]
2. Deltshev C [Delčev H] (1971) Neue Daten über die Verbreitung der Gattung *Meta* (Araneae, Araneidae) in bulgarischen Höhlen. Bulletin de l`Institute de zoologie et musée (Sofia) 32: 89-92. [in Bulgarian, with German and Russian summaries]
3. Deltshev C (1972) A review of spiders (Araneae) from Bulgarian caves. In: Folk C (Ed.) Proceedings of the 5th International Congress of Arachnology, Brno, 99-104.
4. Deltshev C [Delshev C] (1972) A contribution to the study of spiders (Araneae) from the caves in Bulgaria. Bulletin de l`Institute de zoologie et musée (Sofia) 34: 171-175. [in Bulgarian, with English and Russian summaries]
5. Deltshev C [Deltchev C] (1972) A contribution to the study of spiders (Araneae) from the caves in Bulgaria. II. Genus *Lepthyphantes* in Bulgarian caves. Bulletin de l`Institute de zoologie et musée (Sofia) 36: 137-147.
6. Deltshev C (1972) A new genus of Bulgarian cave spiders (*Protoleptoneta bulgarica*, n. g., n. sp., Leptonetidae). International Journal of Speleology 4: 275-283.
7. Deltshev C (1973) A contribution to the study (Araneae) of spiders from the caves of Bulgaria. III. Ecological notes on spiders (Araneae) from the entrance parts of the caves. Bulletin de l`Institute de zoologie et musée (Sofia) 38: 39-47. [in Bulgarian, with English and Russian summaries]
8. Deltshev C (1973) A new *Troglohyphantes* from Bulgarian caves (Araneae, Linyphiidae). International Journal of Speleology 5: 103-109.
9. Deltshev C (1973) Redescription of *Centromerus bulgarianus* (Drensky, 1931) and *Centromerus lakatnikensis* (Drensky, 1931) (Araneae, Linyphiidae). International Journal of Speleology 5: 117-126.
10. Deltshev C (1974) A new *Centromerus* from Bulgarian caves (Araneae, Linyphiidae). International Journal of Speleology 6: 81-86.
11. Deltshev C [Delchev K], Kajak A (1974) Analysis of a sheep pasture ecosystem in the Pieniny Mountains (the Carpathians). XVI. Effect of pasture management on the number and biomass of spiders (Araneae) in two climatic regions (the Pieniny and the Sredna Gora Mountains). Ekologia polska 22(3/4): 693-710.
12. Deltshev C (1975) A new species (*Troglohyphantes bureschianus* n. sp., Araneae, Linyphiidae) from Bulgarian caves. Acta zoologica bulgarica 3: 99-104.
13. Deltshev C (1975) The genus *Lepthyphantes* in Bulgarian caves. Proceedings of the 6th International Arachnological Congrees, Amsterdam, 210-213.
14. Deltshev C [Deltshev H] (1977) Spiders (Araneae) along the Bulgarian Black Sea coast. Terrestrial fauna of Bulgaria, Materials, BAN Publ. House, Sofia, 83-96. [in Bulgarian, with English and Russian summaries]
15. Deltshev C [Deltshev H] (1977) On the spiders (Araneae) in the Loudogorie. Terrestrial fauna of Bulgaria, Materials, BAN Publ. House, Sofia, 251-260. [in Bulgarian, with English and Russian summaries]

16. Deltshev C (1977) A new *Protoleptoneta* from Bulgarian caves (Araneae, Leptonetidae). Acta zoologica bulgarica 6: 3-7.
17. Deltshev C (1977) Genus *Nesticus* (Nesticidae, Araneae) from Bulgarian caves. In: Panoš V (Ed.) Proccedings of the 6th International Congress of Speleology, Olomouc 5, 73-78.
18. van Helsdingen P, Thaler K, Deltshev C (1977) The *tenuis* group of *Lepthyphantes* Menge (Araneae, Linyphiidae). Tijdschrift voor Entomologie 120(1): 1-54.
19. Deltshev C (1978) A new *Histopona* (Araneae, Agelenidae) from Bulgarian caves. Acta zoologica bulgarica 10: 57-59.
20. Deltshev C (1978) The origin, formation and zoogeography of troglobitic spiders of the Balkan Peninsula. Symposia of the Zoological Society of London 42: 345-351.
21. Lehrer A, Deltshev C [Deltcshev C] (1978) Modern methods for biogeographical mapping of Bulgaria. Acta zoologica bulgarica 10: 3-12. [in Bulgarian, with English and Russian summaries]
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List of taxa described by Christo Deltshev

AGELENIDAE

Histopona tranteevi Deltshev, 1978 Acta zoologica bulgarica 10: 57.
Type locality: Bulgaria: Rhodope Mts., Zmeini Borun Cave, village of Mostovo, Plovdiv Distr.

Malthonica bozhkovi Deltshev, 2008 Zootaxa 1872: 38.
Type locality: Bulgaria: Rhodope Mts., Byala Cherkva, 1250 m.

Tegenaria montana Deltshev, 1993 Berichte des naturwissenschaftlich-medizinischen Vereins in Innsbruck 80: 168.
Type locality: Bulgaria: Pirin Mts., Ribno Ezero, 2400 m.
Current status: The species is now assigned to genus *Malthonica* (see Guseinov et al. 2005, Arthropoda Selecta 14 (2): p. 164).

Tegenaria rilaensis Deltshev, 1993 Berichte des naturwissenschaftlich-medizinischen Vereins in Innsbruck 80: 171.
Type locality: Bulgaria: Rila Mts., Granchar Cottage, 2200 m.
Current status: The species is now assigned to genus *Malthonica* (see Guseinov et al. 2005, Arthropoda Selecta 14 (2): p. 164).

Malthonica spinipalpis Deltshev, 1990 in Deltshev and Paraschi, Biologia Gallo-Hellenica 17 (1): 10.
Type locality: Greece: Peloponnesus, Epidavros.

Tegenaria paragamiani Deltshev, 2008 Zootaxa 1872: 40.
Type locality: Greece: East Rhodope Mts., Maronia Cave, village of Maronia, 250 m.

AMAUROBIIDAE

Coelotes brevispinus Deltshev & Dimitrov, 1996 Revue Arachnologique 11 (7): 77.
Type locality: Bulgaria: Slavyanka Mts., Hambar Dere, 1500 m.
Current status: The species is now assigned to genus *Eurocoelotes* (cf. Wang 2002 Bulletin of the American Museum of Natural History 269, p. 76).

Coelotes drenskii Deltshev, 1990 Acta zoologica bulgarica 40: 30.
Type locality: Bulgaria: Stara Planina Mts., Drenovska peshtera Cave, Kotel Town.
Current status: The species is now assigned to genus *Eurocoelotes* (cf. Wang 2002 Bulletin of the American Museum of Natural History 269, p. 76).

Eurocoelotes xinpingwangi Deltshev, 2009 Zoosystematics and Evolution 85 (2): 293.
Type locality: Bulgaria: Rila Mts., Rila Monastery, Kirilova Polyana, 1460 m.

CYBAEIDAE
Cybaeus balkanus Deltshev, 1997 Reichenbachia 32 (1): 1.
Type locality: Bulgaria: Sredna Gora Mts.

GNAPHOSIDAE
Zelotes balcanicus Deltshev, 2006 in: Deltshev, Bosmans, de Spigelaere, Provoost, Revue suisse de Zoologie 113(4): 711.
Type locality: Bulgaria: Shabla Town, dunes.

HAHNIDAE
Cryphoecina Deltshev, 1997 Revue suisse de Zoologie 104 (3): 485.
Typus generis: *Cryphoecina deelemanae* Deltshev, 1997

Cryphoecina deelemanae Deltshev, 1997 Revue suisse de Zoologie 104 (3): 487.
Type locality: Montenegro: Petrovac–Virpazar, Petrovacka Gora, oak woodland, 600 m.

LEPTONETIDAE
Leptonetela andreevi Deltshev, 1985 Acta zoologica bulgarica 7: 41.
Type locality: Greece: Paros Island: Kalabaki Cave, village of Drios.

Protoleptoneta Deltshev, 1972 International Journal of Speleology 4: 275.
Typus generis: *Protoleptoneta bulgarica* Deltshev, 1972

Protoleptoneta beroni Deltshev, 1977 Acta zoologica bulgarica 7: 3.
Type locality: Bulgaria: Belimelska Cave, village of Belimel, Montana Distr.

Protoleptoneta bulgarica Deltshev, 1972 International Journal of Speleology 4: 276.
Type locality: Bulgaria: Bezimenna 22 Cave, village of Karlukovo, Lovech Distr.

LINYPHIIDAE
Araeoncus clivifrons Deltshev, 1987 Reichenbachia 25 (19): 97.
Type locality: Bulgaria: Pirin Mts., Tevno Ezero, 2500 m.

Centromerus acutidentatus Deltshev, 2002 in: Deltshev and Ćurčić, Revue suisse de Zoologie 109 (1): 171.
Type locality: Serbia: entrance of Monastery Cave I, village of Selačka near Minicevo.

Centromerus milleri Deltshev, 1974 International Journal of Speleology 6: 81.
Type locality: Bulgaria: East Rhodope Mts, Karangil Cave near Kardzhali Town.

Centromerus serbicus Deltshev, 2002 in: Deltshev and Ćurčić, Revue suisse de Zoologie 109 (1): 168.
Type locality: Serbia: Zlotska Pećina (Lazareva Pećina) Cave, village of Zlot near Bor.

Centromerus sylvaticus paucidentatus Deltshev, 1983 Acta zoologica bulgarica 21: 54.
Type locality: Bulgaria: Pirin Mts., Prevala Lake, 2300 m.

Centromerus valkanovi Deltshev, 1983 Acta zoologica bulgarica 21: 53.
Type locality: Bulgaria: Varna, Asparuhovo, forest.

Diplocephalus altimontanus Deltshev, 1984 Reichenbachia 22 (11): 91.
Type locality: Bulgaria: Pirin Mts., Vihren Peak, 2914 m.

Drepanotylus pirinicus Deltshev, 1992 Berichte des naturwissenschaftlich-medizinischen Vereins in Innsbruck 79: 173.
Type locality: Bulgaria: Pirin Mts., Vihren Peak, 2550 m.

Erigone longipalpis pirini Deltshev, 1983 Acta zoologica bulgarica 22: 72.
Type locality: Bulgaria: Pirin Mts., Tevno Ezero.

Hypomma aemonicum Deltshev, 2005 Revue suisse de Zoologie 112 (1): 115.
Type locality: Bulgaria: Stara Planina Mts., Vezhen Peak, 2170 m.

Lepthyphantes beroni Deltshev, 1979 Acta zoologica bulgarica 13: 61.
Type locality: Greece: Thera Island: Zoodochus Cave, village of Kamari.

Lepthyphantes beshkovi Deltshev, 1979 Acta zoologica bulgarica 13: 57.
Type locality: Greece: Crete: Tzani Cave, village of Omalos.

Lepthyphantes brignolianus Deltshev, 1979 Acta zoologica bulgarica 13: 54.
Type localities of syntypes: Greece: Crete: Tzani Cave, village of Omalos; Dikteon Antron Cave, village of Psychro; Trapezas Cave, village of Cermadion; Arkandas Cave, village of Catholiko.

Lepthyphantes rectilamellus Deltshev, 1988 Acta zoologica bulgarica 36: 53.
Type locality: Bulgaria: Pirin Mts., Tiyatsite, 2200 m.
Current status: The species is now assigned to genus *Mansuphantes*.

Lepthyphantes lithoclasicolus Deltshev, 1983 Acta zoologica bulgarica 23: 25.
Type locality: Bulgaria: Pirin Mts., Vihren Peak.
Current status: The species is now assigned to genus *Mughiphantes* (recte: *M. lithoclasicola*).

Lepthyphantes gueorguievi Deltshev, 1980 Acta zoologica bulgarica 16: 48.
Type locality: Bulgaria: Dupcheto Cave near Velingrad Town.
Current status: junior synonym of *Palliduphantes spelaeorum* (Kulczyński, 1914), see Deeleman-Reinhold 1985, Mémoires de Biospéologie 12: 39.

Metopobactrus orbelicus Deltshev, 1985 Bulletin of the British arachnological Society 6: 363.
Type locality: Bulgaria: Pirin Mts., Vihren Peak, 2914 m.

Troglohyphantes bureschianus Deltshev, 1975 Acta zoologica bulgarica 3: 99.
Type locality: Bulgaria: Western Rhodopes Mts.: Zmeini Borun Cave, village of Mostovo, Plovdiv Distr.

Troglohyphantes drenskii Deltshev, 1973 International Journal of Speleology 5: 103.
Type locality: Bulgaria: Suhata Peshtera Cave, Velingrad Town.

NESTICIDAE
Nesticus beroni Deltshev, 1973 Proceedings of the 6th International Congress of Speleology, Olomouc 5: 75.
Type locality: Bulgaria: Western Rhodope Mts., Dupkata Cave, village of Mostovo, Plovdiv Distr.

Nesticus beshkovi Deltshev, 1979 Acta zoologica bulgarica 13: 53.
Type locality: Greece: Crete: Trapezas Cave, village of Cermadion.

List of genera and species named in honour of Christo Deltshev

Genus
Deltshevia Marusik & Fet, 2009 (Araneae)
Genotype: *Deltshevia danovi* Marusik & Fet, 2009 – Turkmenistan

Species
Agrilus (*Duttus*) *delchevi* Curletti & Sakalian, 2009 (Coleoptera) – Kenya
Duvalius (*Paraduvalius*) *zivkovi deltshevi* Guéorguiev, 1965 (Coleoptera) – Bulgaria, now junior synonym of *D.* (*Paraduvalius*) *zivkovi* (Knirsch, 1925)
Prodicus delcevi Strasser, 1973 (Diplopoda) – Bulgaria, now *Anamastigona delcevi*
Amilenus deltshevi Dunlop & Mitov, 2009 (Opiliones) – Germany, Palaeogene, Oligocene: Chattian
Coelotes deltshevi Dimitrov, 1996 (Araneae) – Bulgaria, now *Eurocoelotes deltshevi*
Ectatosticta deltshevi Platnick & Jäger, 2009 (Araneae) – China
Halodromus deltshevi Muster, 2009 (Araneae) – Yemen
Harpactea deltshevi Dimitrov & Lazarov, 1999 (Araneae) – Bulgaria
Lepthyphantes christodeltshev Helsdingen, 2009 (Araneae) – Greece
Microbianor deltshevi Logunov, 2009 (Araneae) – Madagascar
Protoleptoneta deltshevi Brignoli, 1979 (Araneae) – Turkey, now *Leptonetela deltshevi*
Saraina deltshevi Azarkina, 2009 (Araneae) – Democratic Republic of Congo
Sparianthina deltshevi Jäger, Rheims & Labarque, 2009 (Araneae) – Venezuela